

REMARKS

In the Office Action dated June 1, 2009, the Examiner objects to claims 1, 33 and 34. The Examiner also rejects claims 1 and 33 under 35 U.S.C. §112, claim 1 under 35 U.S.C. §101 and claims 1, 33 and 34 under 35 U.S.C. §103(a). In this response, Applicants have amended claims 1, 33 and 34 and added new claims 35-93. Applicants have not canceled any claims. After entry of this Amendment, claims 1 and 33-93 are pending in the application. Reconsideration of the Application as amended is respectfully requested in view of these remarks.

Applicants have amended the Abstract to more clearly comply with the proper language and format for an abstract of the disclosure. Applicants respectfully request entry of the amendments to the Abstract.

The Examiner objects to the drawings because FIGS. 1A, 1B and 2 did not previously include the "Prior Art" legend. Applicants have amended FIGS. 1A, 1B and 2 to include this legend. Entry of these replacement drawing sheets are respectfully requested.

The Examiner objects to claims 1, 33 and 34 because the term "singalling" should be "signaling." Applicants have made the appropriate corrections to correct the misspelling. Applicants respectfully submit that the instant objections have been overcome.

The Examiner rejects claims 1 and 33 under 35 U.S.C. §112, second paragraph because the term "incremental contributions" renders the claim indefinite. Applicants have amended claims 1 and 33 to change the term "incremental contributions" to "successive contributions." Support for this amendment can be found at least at page 18, ll 1-16 of Applicants' Specification. Applicants respectfully submit that the instant objections have been overcome.

The Examiner also rejects claim 1 under 35 U.S.C. §101 as not falling within one of the four statutory categories of invention. Specifically, the Examiner indicates that the claim neither transforms the underlying subject matter nor positively ties to another statutory category that accomplishes the claim method steps.

Amended claim 1 recites a method for incrementally coding and signaling motion information for a video compression system involving a motion adaptive transform and embedded coding of transformed video samples using a computer including (a) storing

computer-readable instructions in the computer which, when executed, produce an embedded motion field bit-stream, representing each motion field in coarse to fine fashion and (b) storing computer-readable instructions in the computer which, when executed, interleave successive contributions from said embedded motion field bitstream with successive contributions from said embedded coding of the transformed video samples. Accordingly, claim 1 falls within the statutory categories of invention because, at a minimum, the method is implemented by a particular machine.

The Examiner rejects claims 1 and 33 under 35 U.S.C. §103(a) as being unpatentable over Han et al. (US 6845130) in view of Wu et al. (6700933). Applicants disagree, but make certain clarifying amendments to claim 1. Applicant respectfully submits that the cited references fail to teach or suggest all the features of amended claim 1 and its dependent claims, either alone or in any permissible combination.

The Examiner asserts Han teaches a method for incrementally coding and signaling motion information for a video compression system involving a motion adaptive transform and embedded coding of transformed video samples. In particular, the Examiner states that Hans discloses representing the motion field at multiple scales in a coarse-to-fine manner, where the motion at the coarse level represents the average motion of the corresponding pixels at the finer level is equivalent to step (a) of claim 1. The Examiner cites column 3, lines 20-23 for this teaching.

However, Han does not teach incrementally coding and signaling motion information. Han is directed to hierarchical block-based motion estimation (the process of estimating motion parameters at an encoder), followed by signaling of motion parameters for the leaves of the tree-structure, and using a differential encoding scheme which relies upon prediction from other leaves in the tree. (See e.g., Summary). By way of a non-limiting example only, Applicants' claimed invention permits a reduced quality version of the motion field to be extracted by a decoder and used to reconstruct the video based on a motion adaptive transform. Han does not disclose or even contemplate this principal. Rather, Han deals with predictive video encoders which can, for example, cause video quality to suffer immensely if, during video reconstruction, the motion information that was used during encoding is not accurately utilized by the decoder. Accordingly, to retain the accuracy of motion information, Han teaches, lossless encoding of the motion field. (See e.g., Col. 4, ll. 21-26). Nowhere does Han teach storing

computer-readable instructions in the computer which, when executed, produce an embedded motion field bit-stream, representing each motion field in coarse to fine fashion.

To remedy the deficiencies of Han, the Examiner introduces Wu. The Examiner asserts that element 100 implemented by the coder 80 in Wu is equivalent to step (b) of claim 1. However, Wu relates to the use of a single motion field for all layers. Wu does not teach storing computer-readable instructions in the computer which, when executed, interleave successive contributions from said embedded motion field bit stream with successive contributions from said embedded coding of the transformed video samples. For the foregoing reasons, Applicants submit that Han and Wu, either alone or in any permissible combination, fail to teach or suggest all the features of claim 1. Accordingly, claim 1 is allowable over the cited references.

Applicants have similarly amended independent claim 33. For the same reasons set forth above with respect to the patentability of Applicants' invention as set forth in claim 1 over Hans in view of Wu, it is respectfully submitted that Applicants' invention in claim 33 likewise patentably defines over Han and Wu, either alone or in any permissible combination.

The Examiner rejects claim 34 under 35 U.S.C. §103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Guichard et al. (6700933). Amended claim 34 recites a system for estimating and communicating motion information required by a multi-frame encoding and decoding system which involves a motion adaptive transform based on temporal lifting steps and includes (a) means for estimating and communicating motion parameters describing a first mapping from a source frame onto a target frame within one of the lifting steps, (b) means for inferring a second mapping within the encoding system between either said source frame or said target frame, and another frame, based on the estimated and signaled motion parameters associated with said first mapping and (c) means for inferring the second mapping within the decoding system between either said source frame or said target frame and another frame, based on the communicated motion parameters associated with said first mapping.

The Examiner cites Guichard for mapping a source frame onto a target frame and means for inferring a second mapping. However, Guichard teaches estimating motion for the purpose of image frame fusion. Neither AAPA nor Guichard disclose any means for inferring a second mapping within the encoding system or the decoding system. At most, Guichard discloses the conventional concept of explicitly estimating motion. There is no disclosure that it has

nothing whatsoever to do with inferring motion between a pair of frames from other motion estimates which involve those frames indirectly. For the foregoing reasons, Applicants submit that AAPA and Guichard, either alone or in any permissible combination, fail to teach or suggest all the features of claim 34. Accordingly, claim 34 are allowable over the cited references.

Applicants have added new dependent claims 35-52, which are supported by the application as filed. Claims 35-52 depend from independent claim 33. Applicants respectfully submit that neither Han nor Wu, either alone or in any permissible combination, teach or suggest the features of Applicants' invention as set forth in claims 35-52. Examination of these claims is respectfully requested.

Applicants have also added new dependent claims 53-62, which are supported by the application as filed. Claims 53-62 depend from independent claim 32. Applicants respectfully submit that neither AAPA nor Guichard, either alone or in any permissible combination, teach or suggest the features of Applicants' invention as set forth in claims 53-62.

Applicants have added new dependent claims 65-93, which are supported by the application as filed. Claims 65-93 depend from independent claim 1. Applicants respectfully submit that neither Han nor Wu, either alone or in any permissible combination, teach or suggest the features of Applicants' invention as set forth in claims 65-78.

Applicants have also added new independent claim 79 and claims 80-93 depending directly and indirectly therefrom. Examination of these claims is respectfully requested.

Applicants have also added new independent claim 63. Claim 63 implements the method of claim 1. Applicants respectfully submit that neither Han nor Wu, either alone or in any permissible combination, teach or suggest the features of Applicants' invention as set forth in claim 63.

Applicants have also added new independent claim 64. Claim 63 implements the method of claim 79. Applicants respectfully submit that neither Han nor Wu, either alone or in any permissible combination, teach or suggest the features of Applicants' invention as set forth in claim 63.

It is submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims, and drawings, and that this Amendment does not add any new subject matter to the application. It is submitted that this Amendment places the

Date: December 1, 2009

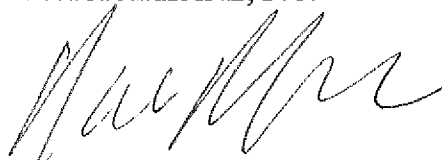
Response to Office Action dated June 1, 2009

Application in suitable condition for allowance; notice of which is requested.

If the Examiner feels the prosecution of the Application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

YOUNG BASILE HANLON &
MACFARLANE, P.C.

A handwritten signature in black ink, appearing to read 'Nadine N. Mustafa', is written over the printed name.

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